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May 17, 2004

Elizabeth J. Haanes Joseph S. Ostroff Frank R. Cottingham Christine M. Lhulier Rea Lynn Prengaman Jane Shershenovich' George S. Bardmesser Daniel A. Klein' Jason D. Eisenberg Michael D. Specht Andrea J. Kamago Trary L. Muller' LuAnne M. DeSantis John J. Figueroa Ann E. Summerfield Tiera S. Coston Arie W. Ledford' Jessica L. Parezo

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Art Unit 2832

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Re:

U.S. Utility Patent Application

Application No. 10/684,587; Filed: October 15, 2003

For: Micro Magnetic Non-Latching Switches and Methods of Making

Same

Inventors:

Shen et al.

Our Ref:

2040.0440000

Sir:

Transmitted herewith for appropriate action are the following documents:

- 1. Information Disclosure Statement;
- 2. Form PTO-1449 (9 pages) listing the cited documents;
- 3. Copies of the (73) cited documents; and
- 4. Return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

Sterne, Kessler, Goldstein & Fox p.l.l.c.

Jason D. Eisenberg
Attorney for Applicants

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Shen et al.

Appl. No.: 10/684,587

Filed: October 15, 2003

For: Micro Magnetic Non-Latching Switches and Methods of Making

Same

Confirmation No.: 1752

Art Unit: 2832

Examiner: B. Rojas

Atty. Docket: 2040.0440000

Information Disclosure Statement

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may

not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this
 Information Disclosure Statement was cited in a communication from a foreign
 patent office in a counterpart application and this communication was not
 received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty
 days prior to the filing of this information disclosure statement.
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final

Shen *et al*. Appl. No. 10/684,587

Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application. a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1). b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2). c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$ in payment of the fee under 37 C.F.R. § 1.17(p). 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1). b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2). 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38. 6. A concise explanation of the relevance of the non-English language document(s) appears below: 7. Copies of the documents are submitted herewith. 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No._____, filed

, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

9. No copies of U.S. patents and patent application publications cited on the attached Form PTO-1449 are submitted in accordance with 1276 OG 55 because this application was filed after June 30, 2003.

10. It is expected that the examiner will review the prosecution and cited art in the parent application no(s). in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jason D. Eisenberg

Attorney for Applicants

Registration No. 43,447

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264468_1.DOC

Page 1 of 9 APPLICATION NO. ATTY. DOCKET NO. 10/684,587 2040.0440000 **FORM PTO-1449** FIRST NAMED INVENTOR Jun Shen TION DISCLOSURE STATEMENT FILING DATE **ART UNIT** October 15, 2003 2832 **U.S. PATENT DOCUMENTS EXAMINER** DOCUMENT FILING DATE INITIAL DATE NAME CLASS SUB-CLASS NUMBER AA1 4,065,677 12/27/1977 Micheron et al. 12/23/1975 AB₁ 4,461,968 07/24/1984 Kolm et al. 01/11/1982 AC1 4,496,211 01/29/1985 Daniel 12/05/1980 12/14/1984 AD1 4,570,139 02/11/1986 Kroll 05/21/1991 AE1 5,016,978 05/21/1991 Fargette et al. AF1 5,048,912 09/17/1991 Kunikane et al. 03/09/1989 AG1 5,398,011 03/14/1995 Kimura et al. 05/17/1993 AH1 5,472,539 12/05/1995 Saia et al. 06/06/1994 09/30/1994 AI1 5,475,353 12/12/1995 Roshen et al. AJ1 5,557,132 09/17/1996 Takahashi 12/06/1994 AK1 01/20/1995 5,629, 918 05/13/1997 Ho et al. FOREIGN PATENT DOCUMENTS EXAMINER DOCUMENT COUNTRY CLASS SUB-CLASS TRANSLATION INITIAL NUMBER DATE DE 10031569 Yes 02/01/2001 Germany No AL1 **A1** Yes DE 19820821 12/16/1999 Germany No AM1 C1 Yes EP 0452012 A2 10/16/1991 Europe No AN1 & A3 Yes EP 0685864 A1 12/06/1995 Europe AO1 No EP 0709911 A2 Yes 5/1/1996 Europe No AP1 & A3 OTHER (Including Author, Title, Date, Pertinent Pages, etc.) Richard P. Feymann, "There's Plenty of Room at the Bottom", December 29, 1959, pp.1-12, Internet AR 1 Source: http://222.zyvex.com/nanotech/feynman.html. E. Fullin, J. Gobet, H.A.C. Tilmans, and J. Bergvist, "A New Basic Technology for Magnetic Micro-AS 1 Actuators", pp. 143-147. Jack W. Judy and Richard S. Muller "Magnetically Actuated, Addressable Microstructures". September 1997, Journal of Microelectromechanical Systems, Vol. 6, No. 3, September 1997, pp.249-AΤ 1

EXAMINER DATE CONSIDERED

255.

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587
FORM PTO-1449	FIRST NAMED INVENTOR	
	Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT
	October 15, 2003	2832

	T		U.S. PA	ATENT DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
INITIAL	AA2	5,696,619	12/9/1997	Knipe et al.	CLASS	30B-CLA33	02/27/1995
	AB2	5,784,190	07/21/1998	Worley			04/27/1995
	AC2	5,818,316	10/06/1998	Shen et al.			07/15/1997
	AD2	5,838,847	11/17/1998	Pan et al.			10/23/1997
	AE2	5,847,631	12/8/1998	Taylor et al.			09/30/1996
	AF2	5,898,515	04/27/1999	Furlani et al.			11/21/1996
	AG2	5,945,898	08/31/1999	Judy et al.			05/31/1996
-	AH2	5,982,554	11/09/1999	Goldstein et al.			12/31/1997
	AI2	6,016,092	01/18/2000	Qiu et al.			08/10/1998
	AJ2	6,016,095	01/18/2000	Herbert			07/06/1998
	AK2	6,028,689	02/22/2000	Michalicek et al.			01/24/1997
-			FOREIGN	PATENT DOCUMENTS	S		
EXAMINER NITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL2	EP 0780858 A1	06/25/1997	Europe			Ye
	AM2	EP 0869519 A	10/07/1998	Europe			Ye
		EP 0887879 A1	06/19/1998	Europe			Ye
	AN2	EP 887879 A1	12/30/1998	Europe			Ye
	AO2	FR 2572546 A	1 5/2/1986	France			Ye
	AP2	OTHE	TP (Including A)		nt Pages etc.)		N
	AR	Ezekiel JJ State Sens Electric C	Kruglick and Kr sor and Actuator Contact Phenomen	istofer SJ Pister, "Project O Workshop, 1998, Hilton He Ia, Nuremberg, Germany, So eley.edu/Kruglick/relays/rel	verview: Micro ad 98 and 19 th lept. 1998 (Dow	mloaded from l	nternet Source:
	AS	12 Tech. Dig	rital Solid-State S	Tristofer S.J. Pister, "Bistablensor and Actuator Workshotact Phenomena, Nurember	op. Hilton Head	d. 1988 and 19"	International
	AT	2 Laure K. 1999, IEE	Lagorce and Oliv EE Journal of Mic	er Brand, "Magnetic Microa roelectromechanical Systen	actuators Based ns, IEEE, Vol. 8	l on Polymer M 8., No. 1., Marc	agnets", March h 1999, 8 pages.
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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587
FORM PTO-1449	FIRST NAMED INVENTOR Jun Shen	
INFORMATION DISCLOSURE STATEMENT	FILING DATE October 15, 2003	ART UNIT 2832

				U.S. PA	ATENT DOCUMENTS								
EXAMINER INITIAL			MENT	DATE	NAME	CLASS	SUB-CLASS	FIL DIC DATE					
INITIAL	AA3	6,078,		DATE 06/20/2000	Yoshikawa et al.	CLASS	SOB-CLASS	FILING DATE					
	AB3	6,084,	281	07/04/2000	Fullin et al.								
	AC3	6,094,	293	07/25/2000	Yokoyama et al.								
	AD3	6,115,	,115,231	5,231	,231	15,231	15,231	5,231	09/05/2000	Shirakawa			
	AE3	6,124,	650	09/26/2000	Bishop et al.								
	AF3	6,143,	997	11/07/2000	Feng et al.								
	AG3	6,160,	230	12/12/2000	McMillen et al.								
	AH3	6,094,	116	07/25/2000	Tai et al.								
	AI3												
	AJ3												
	AK3												
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EXAMINER INITIAL			UMENT IBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION					
	AL3	JP 4	-275519	10/1/1992	Japan			Yes No					
	AM3	ЈР 6	-251684	9/9/1994	Japan			Yes No					
	AN3	JP 5	4-161952	12/22/1979	Japan			Yes No					
	AO3	wo	97/39468	10/23/1997	PCT			Yes No					
	AP3	wo	98/34269	8/6/1998	PCT			Yes No					
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	AR	3			etism Lecture 14", Internet bb/cmp/online/P10D/Lectu		January 3, 2000), pp.1-5.					
	AS	3	"Ultramini informatio	'Ultraminiature Magnetic Latching to 5-relays SPDT DC TO C Band", Series RF 341, product nformation from Teledyne Relays, 1998.									
	AT	3	M. Ruan e Copyright	M. Ruan et al., "Latching Microelectromagnetic Relays", Sensors and Actuators A 91 (July 15, 2001), Copyright 2001 Elsevier Science B.V., pages 346-350.									
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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587	_
FORM PTO-1449	FIRST NAMED INVENTOR		
	Jun Shen		_
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT	
	October 15, 2003	2832	

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	AL4	wo	9927548	6/3/1999	PCT			Yes No	
	AM4							Yes No	
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	AN4							No Yes	
	AO4	-						No Yes	
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	AR	4	Xi-Qing Si Cantilever Germany,	un, K.R. Farme Actuators", 11 IEEE, January	er, W.N. Carr, " A Bistal Mannual Workshop on 25-29, 1998, pp. 154-15	ole Microrelay Base Micro Electrical M 19.	d on Two-Segm echanical Systen	ent Multimorph ns, Heidelberg,	
	AS	4	William P. Taylor and Mark G. Allen, "Integrated Magnetic Microrelays: Normally Open, Normally Closed, and Multi-Pole Devices", 1997 International Conference on Solid-State Sensors and Actuators, IEEE, June 16-19, 1997, pp. 1149-1152.						
	AT	4	William P. Micromacl pp.181-191	nined Relays",	Brand, and Mark G. Al Journal of Microelectro	llen. "Fully Integrate mechanical Systems	ed Magnetically s, IEEE, Vol. 7, 1	Actuated No. 2, June 1998,	
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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587	_
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	Jun Shen		
INFORMATION DISCLOSURE STATEMENT	FILING DATE	ART UNIT	
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	AL5							Yes No			
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	AR	<u>5</u>	Tilmans, et January 17-	al., "A Fully-Pac 21, 1999, copyri	ckaged Electromagnetic Microght IEEE 1999, pp. 25-30.	orelay", Proc	. MEMS '99, O	rlando, FL,			
	AS	<u>5</u>	http://home. "Microrobo	William Trimmer, "The Scaling of Micromechanical Devices", Internet Source: http://home.earthlink.net/-trimmerw/mems/scale.html on January 3, 2000 (adapted from article Microrobots and Micromechanical Systems by W.S.N. Trimmer, Sensors and Actuators, Vol. 19, No. 8, September 1989, pp. 267-287, and other sources)							
	AT	<u>5</u>	John A. Wri MEMS Tec 1998, pages	ohn A. Wright and Yu-Chong Tai, "Micro-Miniature Electromagnetic Switches Fabricated Using IEMS Technology", Proceedings: 46 th Annual International Relay Conference: NARM '98, April 1998, pages 13-1 to 13-4.							
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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587
FORM PTO-1449	FIRST NAMED INVENTOR	
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	AR	<u>6</u>	John A. Wi	right, Yu-Cho	ng Tai and Gerald Lilien Itation", Proceedings Sol Dages 304-307.		atic MEMS Swit Actuator Works	ch for DC hop, Hilton	
	AS	<u>6</u>	John A. Wright, Yu-Chong Tai, and Shih-Chia Chang, "A Large-Force, Fully-Integrated MEMS Magnetic Actuator", Tranducers '97, 1997 International Conference on Solid State Sensors and Actuators, Chicago, June 16-19, 1997.						
	AT	Ann, Chong H. & Allen, Mark G., " A Fully Integrated Micromagnetic Actuator With A Multilevel Meander Magnetic Core, 1992 IEEE, Solid-State Sensor and Actuator Workshop, Technical Digest, Hilton Head Island, South Carolina, June 22-25, 1992, Technical Digest, pp. 14-17.							
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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587
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	AN7							Yes No	
	AO7							Yes No	
	AP7							Yes No	
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	AR	7 E	nglish-La	nguage Abstract	of DE 10031569, published	d February 1, 20	001, 1 page.		
	AS 7 English-Language Abstract of DE 19820821, published December 16, 1999, 1 page.								
	AT 7 English-Language Abstract of EP 0780858, published June 25, 1997, 1 page.								
EXAMINER		<u> </u>				DATE	CONSIDERED		
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	ATTY. DOCKET NO. 2040.0440000	APPLICATION NO. 10/684,587		
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	Jun Shen			
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U.S. PATENT DOCUMENTS								
EXAMINER INITIAL		DOCU NUME	MENT	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
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EXAMINER INITIAL			CUMENT IBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL8							Yes No
	AM8							Yes No
	AN8							Yes No
	AO8							Yes No
	AP8							Yes No
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	AR 8 English-Language Abstract of EP 0869519, published October 7, 1998, 1 page.							
	AS	8	English-Language Abstract of FR 2572546, published May 2, 1986, 1 page.					
	AT	AT 8 English-Language Abstract of JP 4275519, published October 1, 1992, 1 page.						
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